User Guide

Twisted Pair

MTP U T A D

Universal Decora MTP Transmitter

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

68-1674-01 Rev. C
04 11

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'Il y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

安全须知 • 中文

这个符号提示用户该设备用户手册中有重要的操作和维护说明。

这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用 户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过 。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。 不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.

For more information on safety guidelines, regulatory compliances, EMI/EMF compliance, accessibility, and related topics, **click here**.

Conventions Used in this Guide

In this user guide, the following are used:

NOTE: A note draws attention to important information.

TIP: A tip provides a suggestion to make working with the application easier.

CAUTION: A caution indicates a potential hazard to equipment or data.

WARNING: A warning warns of things or actions that might cause injury, death, or other severe consequences.

Commands are written in the fonts shown here:

```
^ARMerge Scene,,Op1 scene 1,1^B51^W^C
```

```
[Ø1]RØØØ4ØØ3ØØØØ4ØØØØ8ØØØØ6ØØ[Ø2]35[17][Ø3]
```

```
Esc X1 *X17* X20* X23* X21CE←
```

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character "Ø" is used for the number zero and "O" represents the capital letter "o."

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 2Ø8.132.18Ø.48: bytes=32 times=2ms TTL=32
```

```
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx –t
```

```
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.

Click the **OK** button.

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Trademarks

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Introduction

This section provides information on:

- **About the Universal MTP Decora® Transmitter**
- **Twisted Pair Cable**

About the Universal MTP Decora® Transmitter

The Extron MTP U T A D is a mini twisted pair (MTP) transmitter, in a two-gang Decora form factor, that is fully compatible with all MTP video and audio receivers and associated MTP products.

MTPs transmit and receive over Extron Enhanced Skew-Free A/V UTP cable or over CAT 5, 5e, or 6 shielded twisted pair (STP), unshielded twisted pair (UTP), or foil shielded twisted pair (FTP) cable.

The Extron MTP U T A D transmitter and one or more compatible receivers comprise a system for long-distance distribution of VGA or other high resolution and low resolution video and audio.

The MTP transmitter inputs high or low resolution video signals (RGB, tri-level and bi-level component video, S-video, or composite video) on connectors dedicated to each video format. The transmitter can auto switch among the inputs or you can manually select the input.

A buffered local monitor connector provides for pass-through of the RGB connector input.

The transmitter also inputs stereo audio signals on a 3.5 mm mini jack and RCA connectors. The transmitter sums the left and right audio channels to convert the audio to mono (L+R) format.

The transmitter converts the inputs to a proprietary signal and outputs that signal on an RJ-45 connector.

The transmitter has dedicated connectors for RGB video, component video, S-video, and composite video.

The compatible MTP receiver inputs the transmitted proprietary signal on an RJ-45 connector, converts the video back into its original format and resolution and the audio into a dual mono output. The receiver 5 outputs video and audio locally.

The transmitter is shipped with an external 12 V, 1 A power supply that accepts 100 to 240 VAC, 50 Hz or 60 Hz input and provides worldwide power compatibility.

Twisted Pair Cable

Twisted pair (TP) cable is much smaller, lighter, more flexible, and less expensive than coaxial cable. These TP products make cable runs simpler and less cumbersome. Termination of the cable with RJ-45 connectors is simple, quick, and economical.

Transmission Distance

NOTE: This transmitter provides pre-peaking, which boosts the signal before it is transmitted.

The maximum distance is determined by the frequency and resolution of the signal that is input to the transmitter. The table on the next page specifies the recommended maximum transmission distances and transmitter Pre-Peak switch positions (refer to the applicable transmitter guide) using Extron Enhanced Skew-Free A/V UTP cable or UTP CAT 5, 5e, or 6 cable, terminated with RJ-45 connectors.

NOTES:

- It is possible to exceed the recommended distance; however, image quality may be reduced.
- The MTP units are designed for and perform best with Extron Enhanced Skew-Free A/V cable terminated in accordance with the TIA/EIA T 568 A wiring standard. CAT 5, 5e, and 6 cables are acceptable, but less preferable. We also recommend the use of preterminated and tested cables. Cables terminated on site should be tested before use to ensure that they comply with Category 5 specifications.

Recommended transmission distances at 60 Hz

Video Format	Pre-peak OFF	Pre-peak On	Max. Distance (high quality)	Max. Distance (variable quality)
Composite, S-video, Component			800 ft (245 m)	1000 ft (300 m)
640 x 480	<300 ft (90 m)	>350 ft (105 m)	700 ft (215 m)	750 ft (200 m)
800 x 600	<300 ft (90 m)	>350 ft (105 m)	550 ft (165 m)	650 ft (200 m)
1024 x 768*	<300 ft (90 m)	>350 ft (105 m)	500 ft (150 m)	600 ft (185 m)
1280 x 960*	<300 ft (90 m)	>350 ft (105 m)	400 ft (120 m)	500 ft (150 m)
1280 x 1024*	<250 ft (75 m)	>300 ft (90 m)	350 ft (105 m)	450 ft (135 m)
1360 x 765	<250 ft (75 m)	>300 ft (90 m)	400 ft (120 m)	500 ft (150 m)
1365 x 768	<250 ft (75 m)	>300 ft (90 m)	400 ft (120 m)	450 ft (135 m)
1366 x 768	<250 ft (75 m)	>300 ft (90 m)	400 ft (120 m)	450 ft (135 m)
1400 x 1050	<250 ft (75 m)	>300 ft (90 m)	350 ft (105 m)	400 ft (120 m)
1440 x 900	<250 ft (75 m)	>300 ft (90 m)	350 ft (105 m)	400 ft (120 m)
1600 x 1200*	<250 ft (75 m)	>300 ft (90 m)	300 ft (90 m)	450 ft (135 m)
1920 x 1200	<250 ft (75 m)	>300 ft (90 m)	300 ft (90 m)	400 ft (120 m)
HDTV 720p	<250 ft (75 m)	>300 ft (90 m)	400 ft (120 m)	500 ft (150 m)
HDTV 1080i	<250 ft (75 m)	>300 ft (90 m)	300 ft (90 m)	400 ft (120 m)
HDTV 1080p	<250 ft (75 m)	>300 ft (90 m)	300 ft (90 m)	400 ft (120 m)

NOTES:
- Resolutions marked with an asterisk (*) in this table have the same range specifications at 75 Hz.
- Extron recommends using at least 25 feet (7.6 m) of TP cable between the transmitter and the first receiver.

Installation and Operation

This section discusses the installation and operation of an MTP U T A D transmitter, including:

- **Installation**
- **Connections and Settings**
- **Making Connections**
- **Receiver Considerations**
- **Skew Delay Compensation**

Installation

The MTP U T A D transmitter can be installed in a two-gang electrical wall box with a Decora wall plate cover (supplied).

The installation must conform to national and local electrical codes and to the wall plate size requirements.

UL Safety Requirements

The following Underwriters Laboratories (UL) requirements pertain to the installation of the Decora transmitter into a wall or furniture.

- This unit must not be connected to a centralized DC power source or used beyond its rated voltage range.
- This unit must be installed in a UL listed junction box.
- This unit must be installed with conduit in accordance with National Electrical Code.

Preparing the Site and Installing the Wall Box

Choose a location that allows cable runs without interference. Allow enough depth for both the wall box and the cables. The box should be at least 2.5 inches (6.4 cm) deep to accommodate the connectors and cables. Install the cables into the wall, furniture, or conduits before installing the wall plate.

NOTE: The Decora unit is 1-5/16 inch (33 m) deep and has connectors on the back side (see **figure 1**). Extron recommends its 2-gang junction box (part number **980084**), which has a depth of 2.5 inches (6.4 cm).

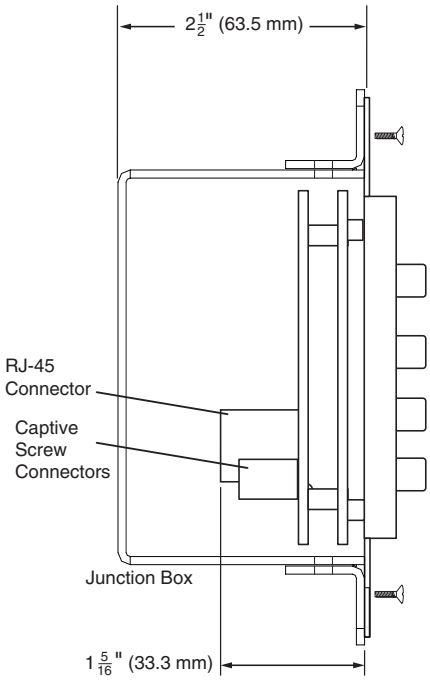


Figure 1. Decora Unit Depth Profile

If installing a new wall box, perform steps **1** through 12. If a suitable wall box is already installed, perform steps **6** through 12. A UL listed wall box is recommended.

1. If a wall box is not available to use for a template, **figure 9** on page 16 provides the dimensions to create a template. If installing directly into furniture, cut out the center portion of your template.

   NOTE: The **figure 9** illustration on page 16 is neither full size nor is it to scale. Do not scale up or print to use as a template.

2. Place the wall box (or your template) against the installation surface and mark the opening guidelines.
3. Cut out the material from the marked area.
4. Insert the wall box into the opening. The box or the rear connectors of the wall plate should fit easily into the opening. Enlarge or smooth the edges of the opening if needed.

5. Secure the wall box with nails or screws, leaving the front edge flush with the outer wall or furniture surface (see **figure 2**).

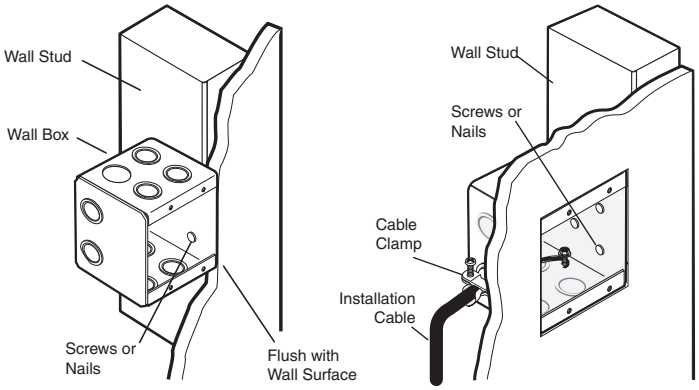


Figure 2. Installing the Wall Box

NOTE: If attaching the wall box to

- **Wood** — use four #8 or #10 screws or 10-penny nails. A minimum of 0.5 inch (1.3 cm) of screw thread must penetrate the wood.
- **Metal studs or furniture** — use four #8 or #10 self-tapping sheet metal screws or machine bolts with matching nuts.

6. Feed the power cable through the opening and through the wall box punch-out holes into the box, securing the cable with cable clamps to provide strain relief.

NOTE: In order to fit in the junction box, the TP cable and RJ-45 connector should not have a boot installed.

7. Feed the twisted pair cable in through the wall box punch-out holes, securing the cable with clamps to provide strain relief.
8. Trim back or insulate exposed cable shields with heat shrink to reduce the chance of short circuits.
9. To prevent short circuits, the outer foil shield can be cut back to the point where the cable exits the cable clamp.
10. Connect the power cable and TP cable to the rear of the unit (see "**Rear Panel Features**" for connector wiring details).
11. Connect a video and an audio source to the front panel (see "**Front Panel Features**" for connector details).
12. Restore the power supply and test the transmitter/receiver system. Make any cabling adjustments before final installation, as the cables will be inaccessible afterwards.

Final Installation

After testing and making any adjustments, do the following:

1. At the power outlet, unplug the power supply.
2. Mount the transmitter into the box and attach the supplied Decora faceplate to the unit (see **figure 3**).

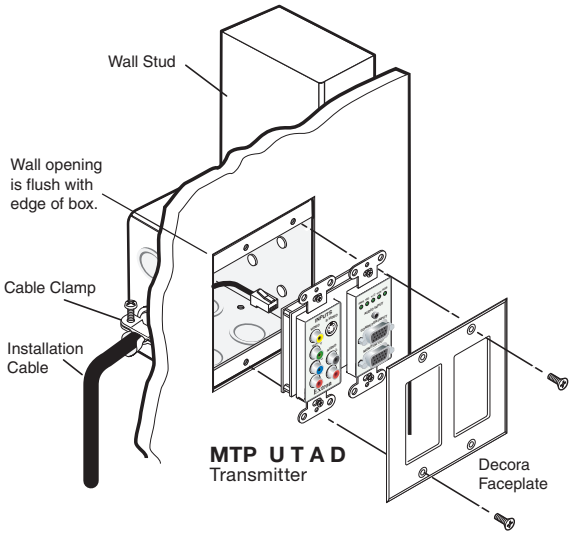


Figure 3. Mounting the Transmitter

3. At the power outlet, reconnect the power supply.

Connections and Settings

Front Panel Features

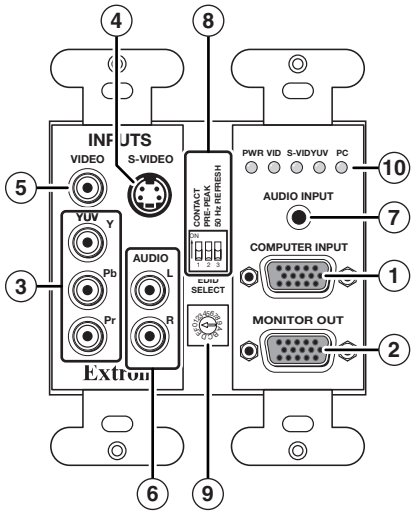


Figure 4. Transmitter Front Panel Features

Video Connections

① **Computer Input connector —** Connect a computer (VGA) video source to this 15-pin HD connector for a high resolution video input.

NOTES:
- Input only sync signals, no video signals, on the sync pins (13 and 14).
- For component video, use the R (R-Y) and R return pins (pins 1 and 6), G (Y) and G return pins (pins 2 and 7), and B (B-Y) and B return pins (pins 3 and 8).
- For S-video, use the R, R return (C-chroma), G, and G return (Y-luma) pins.
- For composite video, use the G pin and the associated return pin. For additional genlocked video signals, use the R, B, and associated return pins.

② **Monitor Output connector —** Connect a video monitor to this 15-pin HD connector for buffered loop-through of the high or low resolution video input on the Computer Input connector (①) **only**.

③ **YUV (component video) input connectors —** Connect a component video source to these RCA jacks for a high or low resolution component video input.

④ **S-video input connector —** Connect an S-video source to this 4-pin mini-DIN connector for a Y/C video input.

⑤ **Video (composite) input connector —** Connect a composite video source to this RCA jack for a low resolution video input.

Audio Connections

NOTES:
- The Audio Input (mini-jack) audio connector is selected when:
  - The Computer Input video (①) is selected for output.
  - The transmitter is in auto switch mode (DIP switch 1 [⑧] is off) and no active video signal is selected.
- The Audio (RCA) connectors are selected when:
  - The YUV (③), S-video (④), or Video (composite) (⑤) input is selected.
- The selected stereo audio input is summed and output on the TP cable as mono audio.

⑥ **Audio (RCA) connector** — Plug stereo audio into these left and right RCA jacks for unbalanced audio input. Wire the plug as shown in **figure 5**.

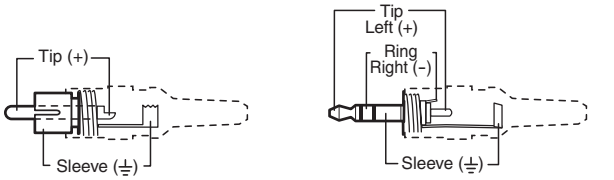


Figure 5. Typical Audio Plugs

⑦ **Audio Input (mini-jack) connector** — Plug a 3.5 mm stereo audio plug into this jack for unbalanced audio input. Wire the plug as shown in **figure 5**.

NOTE: Figure 5 shows a typical 3.5 mm audio connector, which consists of a tip, ring, and sleeve, and an RCA connector, which consists of a tip and sleeve.

Configuration switches

The configuration switches (⑧ and ⑨) will be inaccessible once the Decora faceplate is installed.

⑧ **DIP switches**

- **Contact (1) —** Set this switch on (up) for contact closure control of the input selection. Set this switch off (down) to put the transmitter in auto switch mode (the transmitter automatically selects the highest format video input with a sync signal present).
- **Pre-Peak (2) —** Set this switch on (up) to alter the TP signal output to compensate for long cable runs. Set this switch off (down) for an unpeaked TP output. See the **table** on page 4 for suggested switch settings based on the transmitted video format and transmission distance.
- **50 Hz Refresh (3) —** Set this switch on (up) for 50 Hz refresh rate for the resolution selected by the EDID Select switch. Set this switch off (down) for 60 Hz.

⑨ **EDID Select rotary switch —** Set this switch to one of the positions below to select the local monitor as the source of the EDID data or a specific resolution.

- **Position 0 —** The loop-through monitor (②, on page 6) is the source of the EDID data.
- **Position 1 - F —** Specify a resolution. The following table identifies the switch positions and the associated resolutions. By default, the vertical refresh rate for all resolutions is 60 Hz. The resolution can be set to 50 Hz using the Refresh DIP switch (⑧).

Pos.	Source or Resolution	Pos.	Resolution	Pos.	Resolution
0	Local monitor	6	1280 x 1024	C	1680 x 1050
1	800 x 600	7	1360 x 768	D	1920 x 1080
2	1024 x 768	8	1366 x 768	E	1920 x 1200
3	1280 x 720	9	1400 x 1050	F	Not used
4	1280 x 768	A	1440 x 900		
5	1280 x 800	B	1600 x 1200		

Status LEDs

⑩ **LEDs —**

- **Power** — This LED indicates power is applied to the MTP.
- **Active input** — The lit LED (PC, YUV, S-VID, or VID) indicates the video input that is selected for output on the TP connector.

NOTE: When an input selection is made in contact closure mode, and no signal is active on the input, the selected LED blinks.

Rear Panel Features

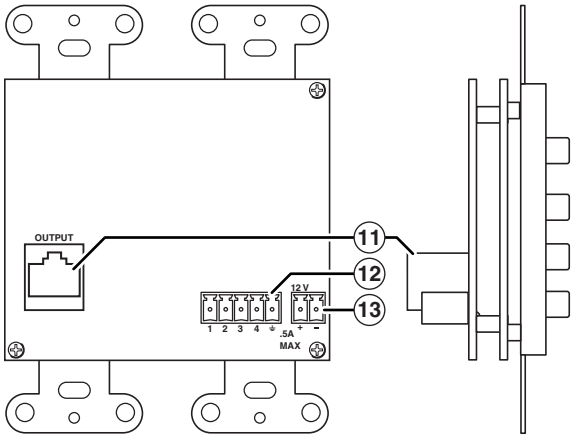


Figure 6. Transmitter Rear Panel Features

⑪ **Output connector —** Connect a TP cable from this RJ-45 female connector to the compatible receiver (see "**TP Cable Termination**" to wire the RJ-45 connectors).

NOTE: See the **table** on page 3 for recommended transmission ranges.

⑫ **Contact closure controls** — To select a video input to output, momentarily tie the assigned pin for that format to ground.

Pin	Format	Pin	Format	Pin	Ground
1	Composite	3	YUV	5	Ground
2	S-video	4	PC		

NOTE: The front panel Contact DIP switch (⑧) must be on (up) for contact closure to be available.

⑬ **DC power connector —** Plug the external 12 VDC, 1 A power supply into this 2-pole captive screw connector (see "**Power Supply Wiring**" to wire the connectors).

NOTE: The remote power capabilities available with certain MTP models are not supported by this unit; the transmitter and receiver both must be powered.

Making Connections

Power Supply Wiring

Figure 7 shows how to wire the power connector.

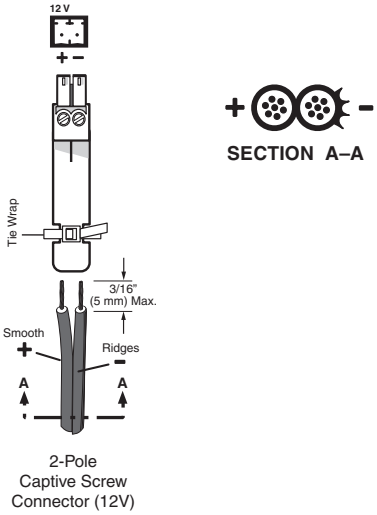


Figure 7. Power Connector Wiring

CAUTION:	Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the MTP. Identify the power cord negative lead by the ridges on the side of the cord (see **figure 7**).

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

WARNING:	The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.

CAUTION:	The length of the exposed (stripped) copper wires is important. **The ideal length is 3/16 inch (5 mm).** Longer bare wires can short together. Shorter wires are not as secure in the direct insertion connectors and could be pulled out.

NOTE:	Do not tin the power supply leads before installing them in the direct insertion connector. Tinned wires are not as secure in the connectors and could be pulled out.

Use the supplied tie-wrap to strap the power cord to the extended tail of the connector.

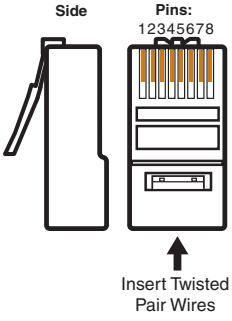
Alternatively, an optional Extron PS 124 Multiple Output 12 Volt DC Power Supply (part number **60-1022-01**) can power multiple Extron 12 VDC devices using only one AC power connector.

TP Cable Termination

NOTES:
- RJ-45 termination with CAT 5, CAT 5e, or CAT 6 cable must comply with the TIA/EIA T568A or TIA/EIA T568B wiring standards for all connections.
- RJ-45 termination with Skew-Free A/V UTP cable must comply with TIA/EIA T568A only.

Figure 8 details the recommended termination of TP cables with RJ-45 connectors in accordance with the TIA/EIA T568A or TIA/EIA T568B wiring standards. You can use either standard with CAT 5/5e/6/7 cable, but ensure that you use the same standard on both ends of the cable.

NOTES:
- The audio data that may be carried on wire pair 3 and 6 is incompatible with the Extron TPX 88A, which cannot switch the audio, output it locally, or break it away.
- Enhanced Skew-Free A/V cable is **not recommended** for Ethernet/LAN applications. This cable is specially designed for compatibility with Extron Twisted Pair products that are wired using the TIA/EIA T568A standard.
  - The green, brown, and blue wire pairs of this cable have virtually identical lengths and should be used to transmit the RGB signals.
  - The orange wire pair of this cable has a different length and **should not** be used to transmit the RGB signals.



Pin	T568A Wire color	T568B Wire color	Video input selected: RGB	Component	S-video	Composite	Audio input: Stereo audio
1	White-green	White-orange	Red+/V. sync+	R-Y+	Chroma (C)+	Reserved	
2	Green	Orange	Red–/V. sync–	R-Y–	Chroma (C)–	Reserved	
3	White-orange	White-green					Mono audio+
4	Blue	Blue	Green+	Y+	Luma (Y)+	Video+	
5	White-blue	White-blue	Green–	Y–	Luma (Y)–	Video–	
6	Orange	Green					Mono audio-
7	White-brown	White-brown	Blue+/H. sync+	B-Y+	Reserved	Reserved	
8	Brown	Brown	Blue-/H. sync–	B-Y–	Reserved	Reserved	

NOTE: If you are using Enhanced Skew-Free ™ A/V cable, use the TIA/EIA T568A standard only.

Figure 8. TP Cable Termination

Receiver Considerations

Carefully review the following receiver considerations:

- The video format selected in the transmitter requires a compatible receiver. A universal receiver, such as the MTP U R RSA SEQ, is recommended.
- Up to seven receivers (MTP RL 15HD A, with or without SEQ) can be connected in series. This daisy chain is accomplished using the standard receivers Buffered Output connectors. The total distance from the transmitter TP output to the last receiver in the chain should not exceed the recommended distance for the resolution being used.
- The receivers buffered outputs do not provide pre-peaking control. The total recommended distance for an entire daisy chain is the same as for a single transmitter and receiver. The transmitter Pre-Peak switch has the same effect on the recommended transmission distance for a daisy chain as for a single transmitter and receiver.

- See the **recommended transmission ranges** on page 3. The recommendations in the table apply equally for a single transmitter and receiver and for a transmission daisy chain. For example, the maximum suggested range for 1024 x 768 video is 300 feet with Pre-Peak off and 500 feet with Pre-Peak on for either one transmitter and one receiver or one transmitter and three daisy-chained receivers.
- For daisy-chained units, the first receiver in the chain must be at least 100 feet from the transmitter when the Pre-Peak switch is on.
- For daisy-chained units, any receiver in the chain closer than 350 feet may experience some form of over-peaking when the Pre-Peak switch is on.

Skew Delay Compensation

CAT 5/5e/6 TP cable can lead to registration errors between the red, green, and blue video signals. Pair skew can be measured with test equipment or identified by viewing a crosshatch test pattern with a critical eye to determine if either the red, green, or blue video image leads (appears to the left of) the other two video images.

Try using the following methods to minimize or eliminate pair skew:

- Use an SEQ receiver or install an SEQ 100 15HD Skew Equalizer on the receiver video output and adjust the skew for the leading video image.
- Switch to Extron Enhanced Skew-Free A/V UTP cable.
- Add a skew compensation cable equal to the length of pair skew to the receiver output.

Reference Information

The section provides information on:

- **Specifications**
- **Part Numbers**
- **Decora Template Dimensions**

Specifications

Video

Gain	Unity
Number/signal type	1 set of proprietary analog signals
Connectors	1 female RJ-45

Video input and loop through

Number/signal type	1 analog RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video input 1 component video (YUV bi-level or tri-level sync) 1 S-video 1 composite video 1 buffered RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video loop through
Connectors	1 female 15-pin HD (RGB, RGBS, RGsB, RsGsBs) 3 RCA (component video) 1 female 4-pin mini DIN (S-video) 1 RCA (composite video) 1 female 15-pin HD (RGB buffered loop through)
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels	0.3 V to 1.45 Vp-p
Impedance	75 ohms
Horizontal frequency	15 kHz to 130 kHz
Vertical frequency	30 Hz to 150 Hz
Return loss	<-30 dB @ 5 MHz
DC offset (max. allowable)	250 mV

Sync

Input type	RGBHV, RGBS, RGsB, RsGsBs
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level	3.5 V to 5.5 Vp-p, unterminated
Input impedance	573 ohms ±5%
Max. input voltage	5.5 V p-p
Polarity	Positive or negative (follows input polarity)

Audio

Number/signal type	1 set of proprietary analog signals
Connectors	1 female RJ-45
Gain	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response	20 Hz to 20 kHz, ±1 dB
THD + Noise	0.15% @ 1 kHz, 0.3% @ 20 kHz at nominal level
S/N	>70 dB at maximum output (unweighted)
Stereo channel separation	>60 dB @ 1 kHz
CMRR	>43 dB @ 20 Hz to 20 kHz

Audio input

Number/signal type	2 stereo, unbalanced
Connectors	(1) 3.5 mm mini stereo jack 1 pair female RCA
Impedance	>10k ohms, unbalanced
Nominal level	+4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
Maximum level	+18 dBu, (unbalanced) at 1%THD+N

NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

General

Recommended cable type	CAT 5/5E/6 (shielded or unshielded) or Extron Enhanced Skew-Free AV UTP
External power supply	100 VAC to 240 VAC, 50-60 Hz, external; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 0.5 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents
Mounting	
Rack mount	No
Furniture mount	Wall or furniture mountable in a Decora®-style opening
Enclosure type	Metal
Enclosure dimensions	
Faceplates	Two [2.6" H* x 1.3" W x 0.2" D (6.6 cm H* x 3.3 cm W x 0.6 cm D)] (Fits the openings in a 2 gang Decora faceplate.) *Height is 4.1" (10.4 cm) including mounting tabs.
Device	Two [2.7" H x 3.2" W x 1.5" D (6.9 cm H x 8.1 cm W x 3.8 cm D)] (Depth excludes input connectors.)
Product weight	0.4 lbs (0.2 kg)
Shipping weight	2 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTES:
- All nominal levels are at ±10%.
- Specifications are subject to change without notice.

Part Numbers

MTP Transmitter and Compatible Devices

NOTE: A complete transmission system requires a transmitter (MTP U T A D) and at least one MTP receiver.

Transmitter	Part Number
MTP U T A D transmitter (white, black)	60-1025-01, -02

NOTE: The following table lists an assortment of compatible MTP receivers. In addition, the MTP U T A D is compatible with the entire MTP product line, including switchers and distribution amplifiers.

Compatible Devices	Part Numbers
MTP U R A receiver	60-869-03
MTP U R RSA SEQ receiver	60-869-01
MTP RL 15HD A receiver	60-690-01
MTP RL 15HD A SEQ receiver	60-690-02
MTP R 15HD RSA D receiver (white, black)	60-929-01, -02
MTP R SV A RCA receiver	60-541-62
MTP R AV RCA receiver	60-541-61

Included Parts

The following parts are included in each order for an MTP U T A D:

Included Parts	Part Numbers
Power supply, 12 VDC, 1A	28-071-57LF
Decora cover plate, white	100-358-03LF
Decora cover plate, black	100-358-04LF
5-pole captive screw connector, qty. 1	10-319-10
MTP U T A D Setup Guide	68-1674-50

Cables

NOTE: Enhanced Skew-Free™ A/V UTP cables are not recommended for Ethernet/LAN applications.

Enhanced Skew-Free™ A/V Cable	Part Number
Enhanced Skew-Free A/V cable (cut, various lengths)	26-569-*xx*
Enhanced Skew-Free A/V 1000' (Bulk) (non-plenum)	22-141-03
Plenum enhanced Skew-Free A/V 1000', (Bulk)	22-142-03

Connectors

Connector	Part Number
CAT 6 jack (black), qty. 10	100-476-01
CAT 6 jack (red), qty. 10	100-477-01
CAT 6 jack (blue), qty. 10	100-478-01
CAT 6 jack (orange), qty. 10	100-479-01
CAT 6 jack (gray), qty. 10	100-480-01
CAT 6 jack (white), qty. 10	100-481-01
CAT 6 jack (ivory), qty. 10	100-482-01

Decora Template Dimensions

To create a template, use the dimensions shown in **figure 9**.

NOTE: The drawing is **not** full size or to scale. Do not scale up or print to use as a template.

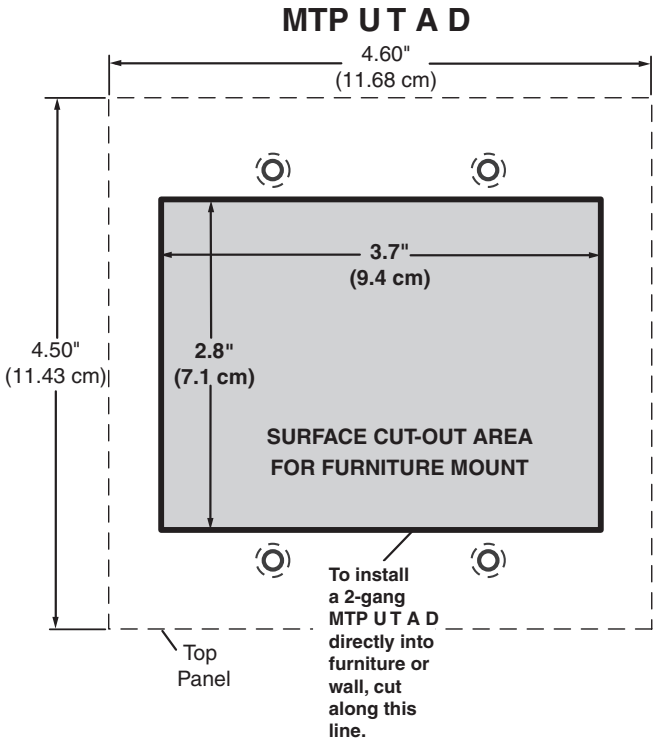


Figure 9. Decora Template Dimensions

Extron® Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Japan:
Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: (714) 491-1500 **Europe**: 31.33.453.4040
Asia: 65.6383.4400 **Japan**: 81.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Extron **USA - West** Headquarters	Extron **USA - East**	Extron **Europe**	Extron **Asia**	Extron **Japan**	Extron **China**	Extron **Middle East**
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+1.714.491.1500 **+1.714.491.1517** FAX	**+1.919.863.1794** **+1.919.863.1797** FAX	**+31.33.453.4040** **+31.33.453.4050** FAX	**+65.6383.4400** **+65.6383.4664** FAX	**+81.3.3511.7656** FAX	**+86.21.3760.1568** **+86.21.3760.1566** FAX	**+971.4.2991880** FAX

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